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| Office Action Summary | Application No. 09/751,261 | Applicant(s) GHOSH, PROSENJIT | |
| | Examiner Jennifer A Boyd | Art Unit 1771 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2000.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
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| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Amendment A, submitted as Paper No. 6 on February 14, 2003, has been entered. Claims 1, 3, 6, 10, 15, 16, 20, 22 and 23 have been amended and claim 2 has been cancelled. The pending claims are 1 and 3 – 28. The Examiner withdraws the objection to claim 6 as set forth in paragraph 1 of Paper No. 4. Amendment A is sufficient to withdraw the 35 U.S.C. 112, second paragraph rejections to claims 3, 4, 5, 16, 17, 18, 23, 24 and 25 as set forth in paragraphs 2 – 5 of Paper No. 4. Despite these advances, the invention is not found to be patentable for the reasons detailed herein below.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. Claims 1, 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mayer (US 1,699,302) in view of Mok (US 5,201,866).

4. As to claims 1, 3 and 7, Mayer teaches a metallic abradant comprising a flat ribbon-like metallic wire (lines 47 – 50), which may be entangled upon itself to form an interentangled mass (lines 60 – 65).

Mayer teaches a conductive assembly but fails to disclose the use of the assembly as a thermal interface between a first surface which is a thermal plate and a second surface which is a heat source.

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Mok teaches that thermal dissipation can be enhanced if a thermal interface material is placed between the base of the fin assembly and a heat generating surface (column 12, lines 9 – 24).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to place the resin-reinforced conductive assembly of Mayer between the two surfaces as suggested by Mok in order to benefit from the thermal conduction properties of the assembly.

5. Claims 1 and 3 - 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bovenschen et al. (US 5,384,185) in view of Mok (US 5,201,866).

As to claims 1, 10 and 20, Bovenschen teaches a resin-reinforced conductive assembly. The assembly comprises at least one non-conductive or substantially non-conductive carrier material and least one fiber web which has been provided on at least one side of the carrier material, with fibers of the conductive web having been brought into electrically conductive contact, though the carrier material, with the other side of the carrier material (column 2, lines 18 – 26). Additional fiber webs (first and second surfaces) can be placed on the outside of the resin-reinforced assembly. The fiber web can be made of metal fibers (column 2, lines 62 – 65), which are inherently malleable. The fiber web implies that the constituting fibers are in contact with each other during any state.

As to claims 15 and 22, Bovenschen teaches that the conducting reinforced matrix resin is reinforced with a reinforcing assembly (column 2, lines 18 – 22). The plastic can be thermoplastic (column 4, lines 31 – 36) which can be made flexible.

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As to claims 3, 16 and 23, Bovenschen teaches that the fiber web can be made of metal fibers (column 9, lines 58 – 62).

As to claims 4, 17 and 24, Bovenschen teaches that the fiber web can be made of non-metal materials such as acrylic or polyester fibers (column 4, lines 38 – 41).

As to claims 5, 18 and 25, Bovenschen teaches that fiber web can be made of carbon fibers (column 4, lines 38 – 41).

As to claim 6, Bovenschen teaches that the conductive web can be bonded chemically (column 3, lines 7 – 10) thus through use of an adhesive.

As to claims 7, 11 and 26, Bovenschen teaches that the fiber web can be a nonwoven (column 3, lines 62 – 64) creating a random pattern.

As to claims 8, 13 and 27, Bovenschen teaches that multiple fiber webs can be stacked (column 3, lines 67 – 68) creating a stacked pattern.

As to claims 9, 14 and 20, Bovenschen teaches that the fiber web can be woven (column 3, lines 10 – 11).

Bovenschen teaches a resin-reinforced conductive assembly but fails to disclose the use of the assembly as a thermal interface between a first surface which is a thermal plate and a second surface which is a heat source.

Mok teaches that thermal dissipation can be enhanced if a thermal interface material is placed between the base of the fin assembly and a heat generating surface (column 12, lines 9 – 24).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to place the resin-reinforced conductive assembly of Bovenschen between the two surfaces as suggested by Mok in order to benefit from the thermal conduction properties of the assembly.

Response to Arguments

Applicant's arguments with respect to claims 1 and 3 – 28 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A Boyd whose telephone number is 703-305-7082. The examiner can normally be reached on Monday thru Friday (8:30am - 6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 703-308-2414. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


Jennifer Boyd
April 22, 2003